www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

Host: Carly Boreland
With: Jim Sturgiss and Gavin Parker

INTRODUCTION:

You are listening to the CPL Podcast from the Centre for Professional Learning.

Carly Boreland:
Welcome to the CPL podcast for the New South Wales Teachers Federation. I'm Carly Boreland. I'm the Assistant Director of the CPL. Today, I'm talking with Jim Sturgiss and Gavin Parker, and we're talking about how you can become more confident using assessment data in your school by understanding statistics, Jim, Gavin, welcome.

Jim Sturgiss: Hello.

Gavin Parker: Thanks Carly.

Carly Boreland: I'm interested to talk to both of you about this because Jim, you've got a background as a science teacher and Gavin you've got background in mathematics teaching and you've both just been delivering a CPL course for us around using statistics in both mathematics syllabuses and the science syllabuses in high school. You would both be very confident and comfortable discussing statistics or using aspects of statistics when we're looking at assessment data, but more and more, I'm seeing that lots of teachers and there's research coming out that teachers are not very confident in using data, evidence and these kinds of things in their own use of assessment and implementing that at schools, in all kinds of ways. So I thought you would be really good people to talk to, and maybe demystify where that's appropriate, but also help us to understand what is it that teachers actually need to grapple with when they're thinking about data in general and how to use that in their stage or in their faculty. So it might be a good place for us to start with maybe Jim, and then Gavin telling us a bit about yourselves and how you've come to be interested in statistics or how you've come to find yourself talking to us today.

Jim Sturgiss: Okay. Well, I might start. I actually was very interested in literacy actually. And I did a master's research honours thesis on literacy because I had been working as a sort of part-time consultant for the Met. West Literacy and Learning Program and there was this assumption that if you become more literate you'd learn better, I just wanted to put that to the test. And so I spent two years collecting data from kids trying to triangulate data from two different sort of assessment regimes, if you

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

like looking at, in terms of literacy, but also looking at, in terms of conceptual sites, seeing if there was an improvement in our kids, if they had been put through a program of literacy, put them through a literacy program on genre and this, that, and the other, and the other class was there was no intervention program, but yet they were meant to be, you know, similar, similar capabilities when they're put into classes or ungraded.

So that got me started anyway, back in 1977, English Language and Literacy Assessment, which is an early version of the Basic Skills Test, which has now morphed into NAPLAN. They were looking for someone who understood literacy but understood assessment as well. And because I'd been assessing these classes, their improvement in literacy and in science conceptual understanding through having some sort of assessment framework, I just walked into that job actually. They had one person who was an English teacher and she was handling the literacy side of things and they wanted somebody who could understand the factual texts that were so prevalent in science. So that's how I got started. And, I worked in the assessment programs in the ELLA, the Basic Skills Test, SNAP, which is second numeracy program, eventually they got me to work on ESSA, which is, Essential Secondary Science Assess, which was morphed into VALID.

And that's looking at very similar, you know, sort of a say similar to the ELLA, because it sort of has, stimulus driven assessment. So we're trying to contextualise kids understanding and seeing how their science helps them to understand that particular problem that might appear in a newspaper article or something from there. I eventually became the coordinator of analytics, which actually reported the stats on all these programs, HSC, and that NAPLAN and VALID.

So that's my background. And, in between, I'd actually gone back into schools a couple of times and I was a head teacher actually was head teacher at Newtown Performing Arts with Gavin. That's how we met each other many years ago. And I was head teacher at Concord High. And since I've separated from The Department, I've been working big blocks in different schools and just keeping my interest up in science because I've been a Director of the Science Teachers Association for many, many years, though I'm no longer that. And then I was a director of the Professional Teaching Council for another seven years.

Carly Boreland: Okay, so it's fair to say that, you know, a lot about types of assessments and how teachers have been asked to engage with these different types of analysis of big scale assessment.

Jim Sturgiss: That's one of those things, Carly, the more you know, the more you realise you don't know.

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

Carly Boreland: I was glad that you said that because I think there must be, there must just be more and more questions. The more you research and the more

Jim Sturgiss: I think it's a Dunning-Kruger Syndrome. If you know, the more ignorance is bliss.

Carly Boreland: What about you Gavin?

Gavin Parker: I come from a different background I guess I've been teaching for 30 years. I guess when I first started, I came out of university with no stats at all. I was a pure mathematician. We used to look on stats as certainly not maths. I listen to Jim's background and I think to myself, I'm more of a common or garden variety teacher. I kind of like getting in and teaching things. So you come across stats, teaching maths and I always love loved it. And I know it's a bit of a nerdy thing to say, but I quite like the teaching of it. And, uh, and the fun and, and I think you really come to grips of it when you become Head Teacher and then suddenly you've got to actually implement these things, look for change and we're told from our masters, this is what you've got to look for and how to develop it.

I know it's a bit nerdy, but I do like stats too. I like sort of the, you know, the interesting ways you can teach it, what it tells you. And I think since, you know, over 30 years, I feels like it's so much more important nowadays. I don't think there's a university course now that that wouldn't use some sort of stats to analyse or measure things. I think it's so important, I kind of think we're duty bound as teachers to make sure we, we impart as much knowledge, you know, how can you measure anything if you don't have a, at least a good understanding of, you know, data and, you know, art of designing data, sampling data, comparing the results and things like that.

Carly Boreland: Can I ask you both then? So you've had long times working in our system at, at different sort of areas and capacities, two questions. What do you think are the big changes with how teachers are engaging with different types of data? First one. And can we also maybe talk a bit about some of the language that we use that is not interchangeable or is interchangeable? Like sometimes we, I think we're sometimes talking about evidence, data, statistics. Like you can kind of just throw them around or maybe that's just me because I did a history degree.

Gavin Parker: Yeah. I'm sure Jim will chime in here, but there's been lots of, there's a lot more assessment now, a lot more, you know, when I first started, we were just starting to bring in the Basic Skills Tests and SNAP in ELLA. Now we've got NAPLAN 3, 5, 7, 9. We've lost the School Certificate score, but there is HSC, they're Best Start data they're talking about. What's the check-in ones they do

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

now? They talk about check-in now for 7, 8, 9, 10, 11, the kids are tested beyond belief at this stage. And there's no point having data if you're not going to use it and analyse it and it's almost data overload, I think.

Carly Boreland: Yeah. And you just mentioned tests as well. And is there a kind of assumption that statistics and data have to come from tests or evidence has to come from tests?

Jim Sturgiss: Well, I was thinking that, you know, data is one thing, but unless you've got it mapped to some sort of assessment framework, which sort of puts flesh on what that data means in terms of the syllabus, it's when you've done that, you've got information that you can do something with otherwise you've just got numbers and, it's pretty soulless and, we need to be wary of, playing with numbers, you know, with, without any sort of assessment framework behind what those numbers actually mean. So that's a really important thing. You were talking about the change. I mean, Gavin was talking about the sheer amount of, assessment data we have and I think it's really important that, when we, create an assessment, we're very picky about what data we want to capture. We don't have to capture everything if you are working to a standards framework, which is what the course performance descriptors give us in the stage five or the performance band descriptions in year 12, they give us an assessment framework that we can clothe these results to redesign our assessments around that and when we design say a depth study or whatever we're doing, we don't have to capture the entire syllabus in that. We only just have to capture those bits that we're interested in. So it assumes that we have an assessment framework that sort of efficiently captures what we need to do so that we've captured everything we need to give a report at the end of two semesters or one semester. And then we repeat that process, so we capture that same sort of data in a different set of assessments, so we can compare progress on how the kid's gone. So we have to be really choosy. It's like when you see people just correcting kids spelling and put red marks over everything, do we really want to do that? Is that what we set out to capture that's important here, you know, is a kid being understood in what they're doing?

Gavin Parker: Things is always, I think if you look at a statistic, you should be able to see where it's come from and what its purpose was. So I don't like the big black box stuff, you know, where it just goes in and gets fed out again. How about the idea that Jim was talking about that it's all mapped to a specific outcome or a, or a standard or something.

Carly Boreland: So you don't have to test everything every time and you should start with your purpose in mind.

Jim Sturgiss: Well, in science, the outcomes are map to the course performance descriptors and so they actually compact a number of outcomes into a descriptor and there are descriptors out there that tells you what you should expect too in questioning and predicting or processing and analysing data.

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

And, you should be just deciding what aspect I want to address there. And then you design your assessments, such that you allow the kids to at least get a band two result, but also challenge the better kids to get a band six results. So you have to go to a lot of trouble to design your assessment. And, I think what is not well understood is that I hear some teachers say, look, I write this test with the kids and, you know, it didn't show me anything, therefore all tests that rubbish, but, I assure you that the test designers that I used to work with, it was a particular science and sort of revolves around things like, I think, Dylan William talks about assessment being the bridge between teaching and learning.

You know, you can't teach something unless you know, where the kids are right now. We need to know where the kids are meant to go. We need to know where they are now. We need to know what the roadmap is to get them from where they are, to where they're going to and an assessment framework, which is based on maybe some sort of learning theory, whether you use a constructivist approach, which we would use in science or that, you know, maybe a Five E, and that's what the syllabus is trying to get us to do and certainly if you look at the performance band descriptions, they are sort of couched in those sorts of terms and so we really need to be careful about what we ask kids to do, because if we put the limit too low and everyone's getting full marks in something, then we're doing everybody a disservice.

Carly Boreland: I wanted to ask you that, that Gavin, because once you have a confident knowledge of what to do with numerical data and the statistical parts of that, I wanted to ask you about, what kind of conclusions do you draw? Like what level of conclusions do you draw? Is it about what to do next year differently? Or is it about what to change next term? Or like, what do you do with this information once you have it?

Gavin Parker: That's a great question. You could do it instantaneously. Like I know it's not really statistics, but in formative assessment, for instance, you know, you're in a class, you do a quick survey of who understands the concept, or you do a little online quiz and you can, you can change in an instant, the big sort of data, like we're talking in NAPLAN, SCOUT, HSC results. Now that's a bit more structured. So you've got to, I would look at it and think to myself, okay, we've done really poorly on probability and I would say, we'd have a chat about what are we doing as a faculty? Do we need, to re-revisit the program? Do we need to re-design your activities? You know, I think there wouldn't be a teacher in the state that wouldn't do some sort of exit survey for each topic.

You know, you just want to know where kids are at. It's really interesting sort of stuff. We do a separate, we do a different program in year seven and eight, for instance, stage four, where it's all about mastery so the students can't move on until they actually master the content. So it's a bit beyond, that

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

idea that they have to get everything right essentially. So it's not about getting, you know, what normally happens. A kid gets 80%, I think well done Jim. That's great. And we might, if we get a bit of time ask Jim to revise it, but we don't really make sure he knows all the 20% of the content he might not know very well.

Carly Boreland: So it's, the idea there is that it's really hard to go on if you don't have some kind of, if you don't have the foundations.

Gavin Parker: It's like building a house, that's the metaphor we always use. You know, you, you might build the floor and you get the certifier in and he says, that's great. Gavin, that's about 80%. correct. You wouldn't keep building a house, but in education we do, so we're going to go to the next level, you know, we put the walls up. Oh, that's about 70%. Correct.

Carly Boreland: What kind of, what kind of support is required to get all the kids to that level?

Gavin Parker: Oh, that's a really good question. That's like the million-dollar question. More support them are getting really, it's because students come to us, I'm talking as a high school teacher with gaps and I'm sure they'd come in primary school with gaps too. It's not a criticism, it's just the way it is. I think you can't, unless you fill those gaps, when the students get to the hard stuff, like, you know, high level algebra, I'm talking maths here, they're going to fall apart, which is what I see happen.

Carly Boreland: Yeah. And so I guess your role is to take the pressure off the teachers and say, you know, that the main thing to do is feel confident that you've taught these students well.

Gavin Parker: Yeah, I think so and also, it's empowering to make sure you empower your staff to, you know what, if someone hasn't mastered that well, there's no point in moving them until they have mastered it.

Jim Sturgiss: Speaking of as, as a practical subject, we would see these skills quite differently and I mean, I understand in mathematics there's like benchmarks, you could say that the kid's got to achieve this before they can go on to the next level. I see, you know, a lot of the skills that we do in science a bit like, I view coaching football, I've got to say. That we teach the kids skills in, you know, throwing a ball in dribbling, passing the ball, tackling, you know, skills in moving the ball up the side-line and crossing it back and so on and we practiced that on Thursday night and we don't expect them all to get it on Sunday morning. And in fact, we would go through that process with each a number of times, and by the end of the year, you would expect some progress there. So we give the kids as many opportunities to, you know, to learn how to graph things and, and the like, depending on what the skill is. And we're hoping that by the end of the year, they would have got it because we have a stage

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

program, which actually says by the end of these two years, they will have got that.

Gavin Parker: That's a nice metaphor, Jim. I like that. I guess mine, when I would be saying, we hope over the year, they'll be ready by the grand final. I'm saying, well, maybe some students won't be ready by the grand final and we just have to be able to deal with that.

Jim Sturgiss: I understand that, you know, by the time I'm teaching chemistry in year 11 and 12 and chemistry is particularly additive so if you don't understand the, you know, that the structure of an atom, there is no way you're going to understand the relationship between it and the periodic table and then the next thing is built on because you actually have to have an understanding of reactivity of particular elements based on their atomic structure and their predictive ability from the periodic table. So there a subject becomes very much build on one another. There, mastery is really important, but you know, a lot of the skills, graphing and processing data and analysing data in being able to design an experiment and at different level, but we're sort of getting away from stats, I think.

Carly Boreland: Yes. And I was just going to say, I think it's really important though, because in a discussion about evidence and data, especially around assessment, I wanted to ask you how much is it about understanding statistics and how much does the teacher need to understand, to be able to look at assessment data and do something meaningful with it to make a conclusion like, oh, we need to do more around algebra if it's maths or more around skill, if it's science or in primary school, the same thing applies in teaching the English syllabus or whatever it is that you're doing, how much knowledge do you actually need? And how much is the context and an understanding of assessment or an understanding of maybe even research methodology?

Jim Sturgiss: I actually think that if you don't understand how the assessment has been put together, then that data is fairly meaningless and people make very poor comparisons around things, you know, unless you can actually say this data means that this kid is at this level. Like I was saying before that you know, it's this journey the kid goes on that you want to know where they are, you know, what the expert looks like. They're probably starting down here as a novice and what's their pathway and this assessment meant to capture. So those numbers actually mean something that means that, you know, they've got seven out of 10, they are performing in a particular way and it's predictable because that's how you design the test. When you get external data like HSC data an NAPLAN data often that data has come back late or even the VALID data that you can get right down to stage three now, it tells you more about the received curriculum than it does about individual, it does tell about individual kids, but they've often moved on by the time you get that data and as a head teacher, I'm really concerned about the programs that we are delivering to the kids. You know, it's the difference between I taught him this, but, what did he learn? And that external data, because it's been done independently and unbiased, it gives you a very clear indication that you might have a gap in, in this part of the syllabus and that's what

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

I'd be particularly interested in as head teacher .

Carly Boreland: A lot happens with the various kinds of data that we collect and, and a lot of assumptions get drawn that end up in making work for teachers or affecting the work that teachers do. So we care about this for really important reasons. It's not a, a mere technical task that we're talking about here. You need to, well, you should be included in the target setting really, but you should also understand how that target is come to and, and I would imagine some of the statistics around how we are going to measure this thing, or if it's even possible to, or desirable to do in that way.

Jim Sturgiss: Oh, I think it's important too, look I'll give you an example. I'm just thinking of the school I used to work in and the principal has just taken, I don't know, 30 periods out of the creative arts faculty taken a period from science and created this thing called a literacy program and so it's a standalone literacy program, which goes against all credibility in the 21st century, but they've got no, no sort of, pre-set assessment of evaluation of it. How do we know this intervention program is working? They haven't taken a sample in the beginning. I'm assuming they're looking at their NAPLAN results that's going to help them do that but I would guarantee, you know, what happens too often is that people have these brilliant ideas, but they actually don't draw a baseline that's valid and they don't even measure when it comes out the other end as the biggest issue I think with intervention programs in schools, there needs to be some way of measuring results otherwise it's pointless.

I've been working with a University doing governance surveys and they have a whole lot of things about, you know, the communication between the principal and the head teachers and the rest of the teachers, say, they talk about the environment of the school and they have this objective, you know, sort of, likert scale from one to five or whatever it is, you know, for all of these things but then at the end of each section, they ask people to say what they want to say, have you got anything else to add? And that data is really important or that information is really important because it puts flesh on some of the sort of objective data that you got at scale as well, and I think that's a theme that's going through here, I mean, people say stats, but really, it's about saying, what does this number mean? Can I put it on an assessment scale that tells me the sorts of things that kids can do at this level? That's, what's really important. I suppose the other thing that's interesting is looking at NAPLAN and looking at the error of measurement of any kids score, because it's quite high. We would want you to take with, you know, it might say a grain of salt because it is legitimate, but there's a fair amount of fuzziness around where that kid is based on that number and one of the reasons why they've gone online and have this triplicate of tests is that they can reduce the error of that measurement of where the kids are on that scale. Unfortunately, we will lose some diagnostic data because you used to be able to say, you know, every kid in the state has done this test. I can see how every kid in my school has gone in it. I can look at the

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

questions where they've done well in those and done, not so well and got some good diagnostic data if I chose to interrogate it, then I can look at my programs to see if there were any gaps in our programs and do something about it.

ANNOUNCEMENT:
The Centre for Professional Learning offers a wide range of professional learning opportunities, all around New South Wales at a fixed rate for members of the New South Wales Teachers Federation. For course, information dates, location, and registration information, visit www.cpl.asn.au

Carly Boreland: Can you stick with me - mean and standard deviation?

Gavin Parker: Well, okay. The mean is the average. Okay, so you add them all up and divide by how many. Standard deviations, a bit more complicated it deals with – you've heard of the bell curve, normal distribution. If you take any sort of measurements, if we had a hundred people in the room and we looked at their weights, we found that any sort of large population tends to tends to form into what we call a bell curve. So you'd have most of the results in the middle where the mean is, and they just get lower as they go out. The standard deviation is a way of measuring that spread of that bell curve.

Carly Boreland: So it goes to what Jim was talking about, about that you want to differentiate your kids, want to spread them out.

Gavin Parker: It's almost a way of sort of standardising or being able to see where student fits on that bell curve.

Jim Sturgiss: So we have to design our assessments that will give you that spread because if your questions are all, you know, describe, describe, describe, you know, very low order questions rather than, explain, analyse, evaluate, then everyone's going to be capped at what they can demonstrate they can do and that's a great, a very big sin when you're designing an assessment.

Carly Boreland: So we need the questions to be open enough to allow the full range of students to demonstrate their ability and then we want to be able to differentiate them and the standard deviation tells us how far apart.

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

Jim Sturgiss: I would probably just add one little thing when you write the questions, you really should be trying to map them to a standard. So, you know, what are you trying to assess? One also should think about questions that subsume on another. So for instance you can give the kids a stimulus around a graph or some sort of diagram in science and you can, the first question will be describe what you see and the second question will be explained what's happening here and so you might find that the band two and three kids, they conk out after the describe question, they don't know how to put the relationship together. You know, the next one might be analyse and observe.

Carly Boreland: They flow in a way that allows everybody to begin the question button, maybe not everybody completes, well, hopefully not everybody completes it to the same level because otherwise you can't see where students are fitting in.

Jim Sturgiss: That's right. So you have one piece of stimulus. Then you ask a series of questions that go up in order of not difficulty, but in order of complexity that all surround the same question.

Carly Boreland: If we are saying, Okay, I go back to school tomorrow and what are you going to do with assessment or with getting better at assessment and using data? What would we be looking for for teachers to start with?

Gavin Parker: I think Jim will agree with me in this, if you get your assessment, right, it will drive your teaching. So if you, you know, we, as high school teachers will look at the HSC and backward map, but I think that's what you should be doing as well. Think about what you're going to assess, how you're going to assess it, think about, particularly, the standards you want and everything else will just follow through from that.

Carly Boreland: And Jim, what about at a system level, perhaps? Have you got any ideas for, what are we, what do we want from a school system then? So that teachers can be feeling more confident to be able to deal with and use the data that's available to them effectively.

Jim Sturgiss: I think it's, you've got to understand the test itself. Have a look at the assessment framework. It's pointless just saying, oh, we went up and down in, you know, in NAPLAN from last year to this year, unless you actually understand, you know, what the sort of skills that kids can do in band six, as opposed to band seven, how has that been differentiated? So you can make those decisions about what's actually happening in the classroom because the numbers by themselves are meaningless.

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

Carly Boreland: Well we started talking about how you could become more confident and it sounds like the really important things to do are to find a way to enjoy more exploring what's going on around assessment or around data use in general, and trying to really understand it from the design all the way through to then the numbers that come out at the end.

Jim Sturgiss: I think so, I think a common error that people make is to a design, a test or an exam or something like that and they just say, well, if you get 50 per cent, well maybe that's not being very generous about what's actually happened here. These kids can do something, and we need to be able to describe what they can do and so you'd be better off saying that, well, you'd actually map it against your assessment framework and say, well, maybe a kid who got 25 is a band two and that's what we are actually describing, the sorts of things that kids are doing band two, which means I can give you some relevant information, but a band three kid can give you a number of descriptions about things in a band. Four can give you a simple explanation of the world. A band five kid can give you an elaborated explanation of things and a band six kid can join different parts of the syllabus together and come up with something new. So you have some sort of taxonomy in mind. That's what you have to have.

Gavin Parker: You're talking about appropriate feedback Jim, isn't it? That's another podcast all on its own.

Carly Boreland: So what to do next is really important, as important as understanding what you've got. Let's go back to what we need to know about statistics and give a little bit of a round up here. So we're saying the statistical information that comes from the numbers that we get out of assessment data or other data that we might generate at school through surveys and those kinds of things. That's one part of a bigger story, and you need a lot more information and understanding than just the number to be able to do something meaningful. So we need to be able to understand how to design a survey or to design what we want to do well. We need some kind of framework that goes around that, which includes a taxonomy of, of progress so that we can spread students out, actually differentiate them based on what they can do and be able to describe that using words, we need to truly understand what a sample and particularly representative sample means so that we have got a representative view of whatever it is that we're doing, where we're wanting to use sample. We need to, or we ought to understand about error in measurement and that, that error, when we're looking at large data sets of students, that error can be quite high at the more able students and at the less able students are at the extremes, we need to understand that and not over panic, perhaps about a bigger variation at the very top and the very bottom we should understand mean and standard deviation.

Gavin Parker: And I'll throw in there a z-score.

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

Carly Boreland: A z-score? You're going to have to explain that now before you go home.

Jim Sturgiss: It's just that, the RAP data gives you z-scores about how your faculty has gone compared to what your subject is gone compared to how the kids went and the rest of it.

Carly Boreland: This is just for the HSC?

Gavin Parker: Yeah. Just putting, you're putting a result on a bell curve basically, and we're just making it standard a standard number.

Carly Boreland: And once you have that level of understanding, then you really need to put all your effort into proper research design, and you need to find a way to enjoy that and teachers as researchers is something that is a really important, kind of disposition to have as an attitude, to have and an inquiring mind, and to design it, deliver it, test it, and then plan for the next phase as well.

Gavin Parker: You shouldn't be alone. It should be a whole bunch of teachers in your area and should be working at it as a group, really.

Jim Sturgiss: I couldn't agree more. I think you want diversity of opinion when you're designing an assessment and because if I designed something by myself, I know what I teach, but other people teach it in a different way and they come from a different point of view and you want diversity, you should always work with at least two, if not three people working on each project. So same as running programs, running assessments should be the same, I've got to say. You've got to respond to that assessment to see how the kids will because too often, people just put a question set together, they don't think about how the kids will respond.

Carly Boreland: Thank you this afternoon for sitting with me, it's been my pleasure. It's always good when I get to talk to my colleagues in mathematics and science, because it's lovely to get different perspectives. And, um, and in this case, some really important insights that I hope will make all teachers feel more confident as they go about their work tomorrow and into the future. Jim and Gavin, thank you so much.

CONCLUSION:
You've been listening to the CPL podcast for the New South Wales Teachers Federation. I'm Carly Boreland. And I've been speaking with Jim Sturgiss and Gavin Parker about using statistics in analysis of evidence, and to find out more and to listen to further podcasts, you can visit cpl.ans.au/podcasts

www.cpl.asn.au/podcasts

CPL Podcast: Confidence Using Assessment Data and Statistics K-12

Jim Sturgiss is an educational researcher and independent educational consultant. A recipient of the NSW PTC Distinguished Service Award for leadership in delivering targeted professional learning to teachers, he works with schools to align assessment, reporting and learning practice. He has been a DoE Senior Assessment Advisor where he developed many state-wide assessments, (ESSA, SNAP, ELLA, BST) and as Coordinator: Analytics where he developed reports to schools for state-wide assessments and NAPLAN. His MEd (Hons) thesis concerned the evaluation of a genre-based literacy program used in the Science classroom. *Do improved literacy outcomes lead to improved science outcomes?*

Gavin Parker began his mathematics teaching career in 1990 and has worked in a variety of Sydney schools for the past 28 years. He was appointed head teacher 15 years ago at Auburn Girls High. He has since worked at Newtown Performing Arts and is currently Head Teacher at Burwood Girls High School.

Gavin's expertise is in developing mathematics programs at all levels and is currently enjoying the challenge of implementing the new senior syllabus. He believes that our purpose in education is to create students who aspire to make mistakes.